Application and Development of Big Data, Internet of Things and Cloud Computing in Tourism and Its Influence on Traditional Travel Agencies

Yanyan YANG

Shanghai Yijia Hotel Co., Ltd
yangyy_sh@126.com

ABSTRACT

The organizational form and product form of the tourism industry determine the industrial characteristics that the tourism industry is highly dependent on information. In the past half century, information technology has been promoting the continuous improvement of the service quality and management ability of the tourism industry, and has always made tourism a practitioner of cutting-edge information technology. Therefore, it is necessary to understand the problems existing in the development of traditional travel agencies, find out the opportunities brought by the era of smart travel, and put forward the development strategies of travel agencies. This paper finds a new way out for travel agencies from the perspectives of big data, Internet of Things and cloud computing technology. Combined with the actual needs of tourists, the development strategies of personalized personal tailor, enriching product themes, attaching importance to product brands, strengthening customer relations and improving service quality are put forward for travel agencies.

Keywords: *Big data; Internet of things; Cloud computing; Travel agency; Wisdom travel*

1. INTRODUCTION

In recent years, China's tourism industry has generally maintained a rapid growth, and the total tourism revenue has achieved a substantial increase. Among them, the domestic tourism market continues to grow rapidly, the inbound tourism market develops steadily, and the outbound tourism market grows gradually [1]. At the same time, the scale of tourism investment has increased substantially, the business performance of enterprises has been continuously improved, and the driving role of tourism industry in economy and society has been further strengthened. With the rapid development of the new generation of information and communication technology, the close integration of information technology and travel agency business is an inevitable development trend [2]. Through big data, Internet of Things and cloud computing technology, online and offline travel agencies can be perfectly combined to maximize profits. In this era background, the survival and development of traditional travel agencies are unsustainable, and the transformation of traditional travel agencies is imperative.

2. THE CONCEPT OF SMART TRAVEL

Smart travel is a new concept after the development of the Internet of Things, but it has not clearly defined the scope. It only stipulates that tourism should be combined with information network to obtain relevant tourism information, and then convey it to people in need, so that they can make relevant work or travel plans, realize the integration and classification of tourism information, improve the accuracy and scientificity of information, and facilitate accurate positioning of the audience.

The emergence of smart travel is a change in the development of the tourism industry, and it is also a microcosm of the current social development in China. It means that the additional tourism industry is personalized, intelligent and scientific, and it represents the transformation of China's tourism industry from the traditional service industry to the emerging modern service industry [3-4]. Smart travel is the inevitable product of the development of information network, and it is also a local link of China's overall development. People can receive services from related enterprises

online, and it will become more and more convenient to arrange travel plans.

Tourism enterprises can integrate and process the collected information, and then push it to people in need through major social platforms, effectively improving the turnover rate and improving the quality of tourism services.

According to the literature research, this paper holds that smart travel is to make use of high-tech information technology, such as cloud computing, Internet of Things, etc., to publish tourism information related to travel, eating, living, traveling, shopping and entertainment through mobile and convenient ways such as mobile APP, navigation, Internet, etc.. Then tourists can integrate and utilize all kinds of real-time information according to their own needs and requirements, from travel destinations, scenic spots, hotels, restaurants, etc.

3.CURRENT DEVELOPMENT OF SMART TRAVEL

3.1Equipment is not equal to demand

The Internet platform will also make accurate product recommendations based on user images. For example, Alibaba Fliggy Travel Platform will form accurate user images through cloud computing based on big data of Taobao, Alipay and other platforms, and provide differentiated products and services according to these user images to meet the needs of different groups of people [5]. These differentiated products and services information will appear in customized form on each user's personal mobile phone interface, that is to say, different people will see completely different products and services in their own mobile phone interface. These are all based on big data and cloud computing, which is called "thousands of people" in Alibaba Group.

Smart travel itself pursues innovation, and what it wants to create is individuality. However, following the trend without goals and plans can only turn wisdom into repetition. There are still many industries that think that wisdom is high-tech, and they have invested a lot of manpower and material resources to study new technologies and increase equipment, but the response is not great, because they all ignore an important issue, that is, starting from the demand. In some places, a large number of high-tech devices are used, but no one cares about them or increases difficulties, which is futile for the construction of smart travel.

3.2Service offer mismatch

At present, the development of smart travel in many places only pays attention to the transmission and update of information, but no one touches the service. Some cities have perfect infrastructure and advanced

equipment, but the staff members know nothing, let alone the service. Fliggy travel platform can also help users organize people with the same needs to travel together according to different types and preferences of consumers. For example, organize users with the same hobbies, users in the same area and users with the same consumption level together to make them travel companions, and travel in a new organizational form, so as to meet the needs of tourism and social interaction. Therefore, the future tourism organization may no longer be organized by traditional travel agencies, but based on different types of user portraits.

In fact, intelligence is only to improve tourists' experience satisfaction. Besides fast and reliable information, the service quality is also very important to measure its success. Tourism is a process of communication between people. Only humanized service can attract tourists and complete the transformation of traditional tourism.

3.3Disordered development

Nowadays, with more and more fixed holidays, people's travel time is relatively concentrated, but they can travel blindly without real-time monitoring data before they travel, which makes many tourists unable to buy tickets or book hotels after arriving at their destinations, and there are situations such as tourist congestion in scenic spots, eating and living in cars, etc. Some tourists who choose to travel by car are stuck on the expressway, and there are not enough parking lots in scenic spots, which greatly reduces the satisfaction of tourism experience and makes smart travel in a disorderly state.

4.THE IMPACT ON TRADITIONAL TRAVEL AGENCIES IN THE GENERAL DIRECTION OF SMART TRAVEL

4.1Single business model will be difficult to operate

First of all, smart travel is a tourism model based on information technology platform. The continuous growth of online booking and online marketing has impacted the traditional travel agency's reliance relationship and word-of-mouth marketing.

With the upgrading of consumption concept, Chinese residents' travel demand is increasing, and China's tourism industry shows sustained and rapid development, providing incremental space for mobile phone maps. High and new technologies such as artificial intelligence, big data, blockchain and cloud computing empower electronic maps, and use technologies such as machine learning, knowledge map, natural language processing and computer vision to improve user experience. With the popularization of Beidou application industrialization

in China and the further improvement of the penetration rate of satellite navigation and positioning system in consumer electronics, the development prospect of mobile phone maps is promising. Figure 1 shows the trend of the number of mobile travel users in China from 2013 to 2018.
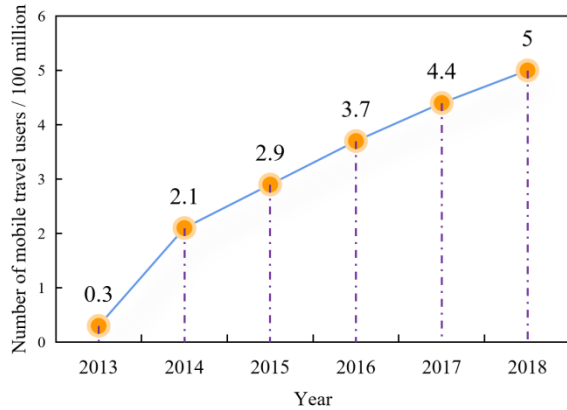
Figure 1 Trend chart of the number of mobile travel users in China from 2013 to 2018

Secondly, at present, the route design has been neglected in the operation of travel agencies in China. Travel agencies spend a lot of time on marketing and group business, resulting in only the difference of guests among travel agencies, while the routes are almost identical.

The mobile phone map is the map information developed in apps installed in mobile. The scale of mobile phone map users in China is steadily increasing. In 2018, the number of mobile phone map users in China was 720 million. Among the main mobile phone map applications, Gaode map and Baidu map have become national applications (Table 1).

Table 1 Trend chart of mobile phone map user scale in China

Year	Mobile phone map users (100 million people)
2013	4.2
2014	5.1
2015	5.9
2016	6.4
2017	6.8
2018	7.2

In the era of smart travel, customers' self-choice is expanded, and customers can choose their own needs through the information platform. Therefore, for travel agencies, creating personalized products can finally win customers.

4.2There will be fewer and fewer group tours

In the past, when smart travel didn't appear, because tourism usually went to a relatively unfamiliar place, most people would choose to report to travel agencies for convenience and safety. But now, with the constant popularization of smart travel, not only navigation, but also tour guides and shopping guides have largely replaced travel agencies, especially more and more young people, whose lifestyle in go on road trip has become an idea, which has also brought a certain impact to the traditional group travel of travel agencies.

4.3Great changes have taken place in traditional jobs in tourism

With the rise of smart travel, the high integration of information technology and tourism will inevitably lead to the development of traditional travel agencies and tourist attractions in the direction of intelligence, which will inevitably have a great impact on the traditional posts of tourism. Under the background of smart travel, it will have a great influence on the related positions of traditional travel agencies.

The positions related to traditional travel agencies refer to: tour guide (including local escort, full escort, tour leader), dispatcher, outreach staff, sales staff, ticketing staff and financial staff, etc. In addition, for the emerging smart travel agencies, some local governments have issued corresponding management norms. Of course, such measures are very necessary to regulate the order of the smart travel market in its development and self-operation.

5.COUNTERMEASURES TO BE TAKEN BY TRAVEL AGENCIES IN THE ERA OF WISDOM TRAVEL

5.1Big data cloud computing catalyzes the new industrial chain of smart travel

With the improvement of network environment and the development of mobile Internet technology, the demand of various mobile Internet applications is gradually stimulated. From basic entertainment communication, information inquiry, business transactions, online finance, education, transportation and other public services, the mobile Internet has shaped a brand-new social life form and subtly changed the daily life of mobile netizens. Therefore,traditional travel agencies have joined the smart travel in the wave of mobile Internet.By means of big data mining technology, online travel to collect market information, meet the needs of target customers and realize customer relationship management has become the direction of self-improvement of smart travel.

As upstream product suppliers, travel agencies should gradually increase the preferential efforts of direct sales to expand market share, and large online agents in the middle reaches gradually improve their service modes to

seize users and traffic. The downstream media marketing platform gives full play to its advantages and plays a huge role in the word-of-mouth communication of tourist destinations.

5.2 Application of various technical advantages of Internet of Things in smart travel construction

With the emergence of mobile terminal devices, Bluetooth, infrared and other high-tech technologies, travel agencies will also make full use of them in building smart travel. Through these intelligent terminal devices of sensing technology, China's tourism industry has realized the innovation and upgrading of many systems, such as hotel services, scenic access control system, intelligent tour guides and so on.

Accommodation is the key link to be improved in the modern smart travel construction system. In the traditional tourism development, hotel accommodation in tourist attractions is a prominent problem. Affected by the asymmetric information resources, the hotel can't know the resource needs of customers, and the customers can't know the hotel room resources. However, with the integration of Internet of Things technology in the smart travel platform, this demand of tourism consumers can be met to the greatest extent.

Hotel management in tourist attractions also realizes intelligent hotel management with the help of Bluetooth and infrared sensing technology. Under the intelligent monitoring and management of this new technology, the contradiction between supply and demand between consumers and hotels has been effectively avoided, and consumers have been helped to make travel plans more scientifically and reasonably, and the hotel service quality has been improved, and the hotel's credibility and customer satisfaction have been deepened.Travel agencies should make use of the travel agency management system to integrate with the external platforms of smart hotels and smart scenic spots to enhance customer experience. After the improvement of customer satisfaction, the adhesion between customers and travel agencies also improved again.

5.3 Blockchain technology empowers high-quality development of smart travel

Blockchain, as an underlying technical architecture, its fundamental value lies in its integration with economy and society. It is a potential idealized application field of tourism blockchain technology [6]. "Blockchain+smart travel" is conducive to giving new connotation to the development of smart travel and activating new kinetic energy of tourism development.

First of all, technologies such as distributed data storage of blockchain can provide an important technical basis for promoting multi-source and multi-data collection, mining and fusion applications, and promoting the modernization of modern tourism governance system and governance capacity. Governance emphasizes the connotations of polycentricity, transparency, trust and justice, and the blockchain is technically very close to the conditions for realizing these connotations.

Secondly, blockchain helps to weaken or even eliminate the market power of intermediary organizations such as online travel agencies and tourism supply chain distribution system, promote the decentralization of tourism, reduce intermediate links, reduce transaction costs and improve industrial operation efficiency.

Finally, "blockchain+smart travel" is conducive to cultivating new directions of tourism development and providing new opportunities for tourism development and transformation. A brand-new credit mechanism can be established by using the attributes of blockchain information that can't be tampered with, data traceability, openness and transparency, and the support of smart contracts, so as to realize the trusted circulation of value and lay a new credit foundation for tourism.

Travel agencies should embrace the application of blockchain technology in the tourism industry, and actively join the blockchain application scenario. The attributes of the advantages of travel agencies in designing unique products and having professional tour guides make travel agencies a unique part of the blockchain application scenario.

5.4 Smart travel platform construction

To build a comprehensive service platform for smart travel, it is necessary to have the functions of data aggregation, operation supervision, emergency command, passenger flow dynamic monitoring, tourist alarm, etc., so as to facilitate users' access, query and obtain data quickly and conveniently, and communicate and interact smoothly.

On the platform side, firstly, tourists, simple and intelligent user terminals can ensure that the latest tourist information can be grasped in time during the whole journey, and provide high-quality intelligent services, which will greatly improve the tourist experience. Second, travel agency can accurately analyze tourists' sources, travel habits, dietary preferences, accommodation choices, consumption behaviors, etc. by mining data through the platform, which is helpful to make scientific and personalized travel itineraries for tourists and improve service quality and economic benefits. Third, relevant government departments can help them manage more efficiently and intelligently.

6.CONCLUSIONS

In the era of smart travel, travel agencies are faced with great threats, and at the same time, they are faced with opportunities and challenges. This paper explores the development direction and methods of travel agencies, which can provide detailed data and theoretical support for the management of travel agencies and facilitate the travel agencies to move in the right direction. Faced with rich marketing strategies, travel agencies must use big data, Internet of Things, cloud computing and other technologies to strengthen the construction of network information, improve the business philosophy of smart travel agencies and increase the public service system of travel agencies, so as to build a more complete travel agency sales platform, pay attention to cross-border integration with other industries, and take advantage of scenic spots, other large travel agencies, media and banks to improve travel agency products and expand travel agency sales channels.

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